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NEW COMBINATIONS IN *SCHNELLA* (FABACEAE: CAESALPINIODEAE: CERCIDEAE)

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ABSTRACT

New combinations are proposed for 28 species and one section in *Schnella*. The taxa are segregated from the genera *Bauhinia* and *Phanera*.

KEY WORDS: *Schnella*, Cercideae, Fabaceae.

Giuseppe Raddi (1770–1829) described the genus *Schnella* (p. 32) (Fabaceae: Caesalpiniaceae: Cercideae) and two species *S. macrostachya* (p. 32–33, fig. 4) and *S. microstachya* (p. 33) in *Quaranta Piante Nuove del Brasile* (1820) a preprint from *Mem. Mat. Fis. Soc. Ital. Modena* 18(2): 382–414. 1821 (see Stafleu and Cowan 1983: 538). Although Stafleu and Cowan cited "1820" for pages 382–414, they gave "Jan 1821" for pages 313–349. There is no evidence that the relevant pages were published out of sequence, so 1821 should be accepted as the date of publication as did Goldenberg and Baldini (2002).

Early workers (e.g., Don 1832; Grisebach 1860) followed Raddi and described new species in *Schnella*. Bentham (1840, 1844, 1845) at first similarly recognized *Schnella* as a genus but later (1865) reduced it to a section of *Bauhinia*. Sixty five years later Britton and Rose (1930) reinstated it as a genus, recognizing nine species, two of them new, followed by Britton and Killip (1936), who recognized 10 species in Colombia, four of them new. This was at first followed by a few others, but most later workers placed species previously recognized in *Schnella* in the expanded genus *Bauhinia*. Schmitz (1973) again briefly recognized *Schnella* on the basis of his pollen studies. In their reorganization of the Cercideae, Wunderlin et al. (1987) followed Bentham (1865) in recognizing it as a section of *Bauhinia*, along with 10 other sections in the subgenus *Phanera*, one of four subgenera in *Bauhinia* sensu lato. Lewis and Forest (2005), using molecular studies by Forest (unpublished), recognized 12 genera in the Cercideae and placed the tropical American species of tendriled lianas (*Schnella* sensu Raddi and others) in the Old World genus *Phanera*, but they indicated that *Schnella* may prove to be distinct. Molecular studies of Sinou et al. (2009) supported the work of Lewis and Forest (2005).

Following the concept proposed by Lewis and Forest (2005), Queiroz (2006) described a new species and made three new combinations in *Phanera* species from the Brazilian Caatinga. Subsequently Vaz (2010) made 29 new combinations by transferring more Brazilian species into *Phanera*.

Schnella can easily be distinguished from *Phanera* by a variety of characters, most evidently by the presence of 10 fertile stamens in the former as contrasted by 3(–2) in the latter. *Schnella* as recognized here consists of about 40 species. It is divided into two sections that are distinguished in the following key.

1. Calyx 5-nerved, the nerves often inconspicuous; ovary 1(–2) ovulate; fruit always thin-valved, indehiscent ..... I. Section *Schnella*
1. Calyx conspicuously 10- or 15-nerved; ovary 3- to 6-ovulate; fruit woody, dehiscent (thin-valved and indehiscent in *S. herrerae*) ..... II. Section *Caulotretus*

Wunderlin and Eilers (2009) revised the species placed here in section *Schnella* and Vaz (1979) treated the Brazilian species in section *Caulotretus*.

Schnella Raddi, Quar. Piant. Nuov. Bras. 32. 1820. *Bauhinia* sect. *Schnella* (Raddi) Benth., in Bentham & Hooker. f., Gen. Pl. 1: 576. 1865. **TYPE**: *Schnella macrostachya* Raddi. Lectotype designated by Britton and Rose (N. Amer. Fl. 23: 205. 1930).

Lacara Sprengel Neue Entdeck. Pflanzenk. 3: 56. 1822. **TYPE**: *Lacara triplinervia* Spreng. [?=*Schnella smilacina* (Schott) G. Don].

Caulotretus Rich. ex Schott, in Sprengel, Syst. Veg. 4(2): 406. 1827. **TYPE**: *Caulotretus smilacina* Schott [=*Schnella smilacina* (Schott) G. Don].

Caulotretus sect. *Eucaulotretus* Endl., Gen. Pl. 1317. 1840, nom. inval.

I. **Schnella** sect. **Schnella**

Schnella lilacina (Wunderlin & Eilers) Wunderlin, comb. nov. Basionym: *Bauhinia lilacina* Wunderlin & Eilers, J. Bot. Res. Inst. Texas 3: 621. 2009. **TYPE**: **Brazil**. Bahia: Km 5 on Núcleo Colonial de Una-São José Highway (BR101), 4 Aug 1977 *Silva Mattos & Hage 81* (holotype CEPEC!; isotypes: K!, US!)

Schnella maximiliani (Benth.) Wunderlin, comb. nov. Basionym: *Bauhinia maximiliani* Benth., in Martius, Fl. Bras. 15(2): 207. 1870. **TYPE**: **Brazil**. Espírito Santo: Vila de Nova Almeida, s.d., *Wied-Neuwied s.n.* (holotype: BR; isotype: M; photo ex RB!).

Schnella poiteauana (Vogel) Wunderlin, comb. nov. Basionym *Bauhinia poiteauana* Vogel, Linnaea 13: 309. 1839. **TYPE**: **French Guiana**. 1844, *Poiteau s.n.* (holotype: B, destroyed; lectotype: K!, photo ex B: US!; photo ex K: US!). Lectotype designated by Wunderlin and Eilers (J. Bot. Res. Inst. Texas 3: 625. 2009).

Schnella trichosepala (L.P. Quieroz) Wunderlin, comb. nov. Basionym: *Phanera trichosepala* L.P. Quieroz, Neodiversity 1: 7. 2006. **TYPE**: **Brazil**. Bahia: Ruy Barbosa, Serra do Orobó, trilha para o Pátio das Orquídeas, 12°18'S 40°29'W, 8 Feb 2005, *Cardoso 281* (holotype: UUEFS; isotypes: CEPEC, K).

II. **Schnella** sect. **Caulotretus** (DC.) Wunderlin, comb. nov. *Bauhinia* sect. *Caulotretus* DC., Prodr. 2: 516. 1825. **TYPE**: *Bauhinia glabra* Jacq. [=*Schnella glabra* (Jacq.) Dugand. Lectotype designated by Wunderlin et al. (Biol. Skr. 28: 25. 1987.).

Binaria Raf., Sylva Tellur. 122. 1838. *Bauhinia* subsect. *Binaria* (Raf.) Wunderlin et al., Biol. Skr. 28: 25. 1987. **TYPE**: *Binaria cumanensis* (Kunth) Raf. [=*Schnella glabra* (Jacq.) Dugand].

Bauhinia sect. *Tylotaea* Vogel, Linnaea 13: 312. 1839. *Caulotreus* sect. *Tylotaea* (Vogel) Endl., Gen. Pl. 1317. 1840. **TYPE**: *Bauhinia kunthiana* Vogel [=*Schnella kunthiana* (Vogel) Wunderlin. Lectotype designated by Wunderlin et al. (Biol. Skr. 28: 25. 1987).

Cardenasia Rusby, Mem. New York Bot. Gard. 7: 257. 1927. **TYPE**: *Cardenasia setacea* Rusby [=*Schnella glabra* (Jacq.) Dugand].

Bauhinia sect. *Caulotretus* subsect. *Latisiliquae* Wunderlin et al., Biol. Skr. 28: 25. 1987. **TYPE**: *Bauhinia herrerae* (Britton & Rose) Standl. & Steyerm. [=*Schnella herrerae* Britton & Rose).

Schnella alata (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia alata* Ducke, Arch. Jard. Bot. Rio de Janeiro 4: 55. 1925. **TYPE**: **Brazil**. Pará: Rio Tapajós, Vila Braga, 24 May 1923, *Ducke s.n.* (lectotype: RB; isolectotype: P). Lectotype designated by Vaz (Rodriguésia 61(Sup): S33–S40. 2010).

Schnella altiscandens (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia altiscandens* Ducke, Bol. Técn. Inst. Agron. N. 2: 17. 1944. **TYPE**: **Brazil**. Amazonas: Esperança, mouth of the Rio Javari, 28 Jan 1942, *Ducke 895* (holotype: RB; isotype: MG, SI).

Schnella anamesa (J.F. Macbr.) Wunderlin, comb. nov. Basionym: *Bauhinia anamesa* J.F. Macbr., Contr. Gray Herb. 59: 22. 1919. **TYPE**: **Brazil**. Goiás: near Goiás, s.d., *Burchell 7337* (holotype: K).

Schnella angulosa (Vogel) Wunderlin, comb. nov. Basionym: *Bauhinia angulosa* Vogel, Linnaea 13: 312. 1839. **TYPE**: **Brazil**. s.d., *Sellow 980* (holotype: B, destroyed; isotype: K!; photo ex B: F!, US!, photo ex K: NY!, RB, US!).

Schnella carvalhoi (Vaz) Wunderlin, comb. nov. Basionym: *Bauhinia carvalhoi* Vaz, Brittonia 47: 376. 1995. **TYPE**: **Brazil**. Bahia: Uruçuca, Distrito de Serra Grande, 7.3 km on Serra Grande/Itacaré road, Fazenda Lagoa do Conjunto Santa Cruz, 7 Sep 1991, *Carvalho et al. 3610* (holotype: CEPEC; isotypes NY!, RB).

Schnella confertiflora (Benth.) Wunderlin, comb. nov. Basionym: *Bauhinia confertiflora* Benth., in Martius, Fl. Bras. 15(2): 206. 1870. **TYPE**: **Brazil**. Amazonas: Rio Negro, "sylvis Yapurensibus", s.d., *Martius 2974* (holotype: M; photo ex M: F!, G!, US!).

Schnella cupreonitens (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia cupreonitens* Ducke, Arch. Jard. Bot. Rio de Janeiro 4: 56: 1925. **TYPE**: **Brazil**. Pará: Rio Majú, lower Rio Amazonas, 3 Nov 1923, *Ducke 16973* (holotype: RB; isotypes: B, destroyed, IAN, K!, US!; photo ex B: F!, US!).

Schnella erythrantha (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia erythrantha* Ducke, Arg. Inst. Biol. Veg. 4: 14. 1938. **TYPE**: **Brazil**. Amazonas: near Borba, Rio Madeira, 27 Apr 1937, *Ducke 35434* (holotype: RB; isotypes: G!, K!, IAN, P!).

Schnella grazielae (Vaz) Wunderlin, comb. nov. Basionym: *Bauhinia grazielae* Vaz, Atas Soc. Bot. Brasil, Secç. Rio de Janeiro 2(9): 73. 1984. **TYPE**: **Brazil**. Espírito Santo: Mata de Dourados, 6 Nov 1953, *Duarte & Gomes 3683* (holotype: RB; isotypes: CVRD, K).

Schnella guianensis (Aubl.) Wunderlin, comb. nov. Basionym: *Bauhinia guianensis* Aubl., Hist. Pl. Guiane 1: 377. 1775. **TYPE**: **French Guiana**. Cayenne, 1775, *Aublet s.n.* (holotype: P; isotypes: BM!, fragment F!; photo ex BM: US!).

Schnella klugii (Standl.) Wunderlin, comb. nov. Basionym: *Bauhinia klugii* Standl., Publ. Field Mus. Bot. Nat. Hist., Bot. Ser. 22: 143. 1940. **TYPE**: **Peru**. San Martín: Chazuta, Río Huallaga, Mar 1935, *Klug 4027* (holotype: F!; isotype NY!, US!).

Schnella kunthiana (Vogel) Wunderlin, comb. nov. Basionym: *Bauhinia kunthiana* Vogel, Linnaea 13: 312. 1839. **TYPE**: **French Guiana**. Dec 1824, *Poiteau s.n.* (holotype: B, destroyed; photo ex B: F!, US!).

Schnella longiseta (Fróes) Wunderlin, comb.nov. Basionym: *Bauhinia longiseta* Fróes, Bol. Técn. Inst. Agron. N. 19: 25. 1951. **TYPE**: **Brazil**. Amazonas: São Paulo de Olivença, Rio Solimões, 10 Dec 1948, *Fróes 23699* (holotype: IAN; isotype: NY!, RB, US!).

Schnella outimouta (Aubl.) Wunderlin, comb. nov. Basionym: *Bauhinia outimouta* Aubl., Hist. Pl. Guiane 1: 375. 1775. **TYPE**: **French Guiana**. s.d., *Aublet s.n.* (Lectotype: W; photo ex W: F!, MO!, US!; isotype: BM!; photo ex BM: NY!). Lectotype designated here.

Schnella platycalyx (Benth.) Wunderlin, comb. nov. Basionym: *Bauhinia platycalyx* Benth., in Martius, Fl. Bras. 15(2) 207. 1870. **TYPE**: **Brazil**. Pará: Caripi, s.d. *Spruce 250* (holotype: K).

Schnella porphyrotricha (Harms) Wunderlin, comb. nov. Basionym: *Bauhinia porphyrotricha* Harms, Notizbl. Königl. Bot. Gart. Berlin 6: 307. 1915. **TYPE**: **Brazil**. Acre: Rio Acre, Monte Alegre, Seringal São Francisco, Sep 1911, *Ule 9439* (holotype: B, destroyed; isotypes: IAN, K).

Schnella pterocalyx (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia pterocalyx* Ducke, Arch. Jard. Bot. Rio de Janeiro 3: 109. 1922. **TYPE**: **Brazil**. Amazonas: Rio Purús, near Pôrto Alegre, 8 Apr 1904, *Huber 4401* (holotype: MG; isotypes: BM, G, RB).

Schnella reflexa (Schery) Wunderlin, comb. nov. Basionym: *Bauhinia reflexa* Schery, Ann. Missouri Bot. Gard. 38: 17. 1951. **TYPE**: **Panama**. Canal Zone: vicinity of Salamanca Hydrographic Station, Río Pequení, 28–29 Jul 1938, *Woodson et al. 1623* (holotype: MO!; isotype: NY!, US!).

Schnella riedeliana (Bong.) Wunderlin, comb. nov. Basionym: *Bauhinia riedeliana* Bong., Mém. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math. Second Pt. Sci. Nat. 4(2): 113. 1836. **TYPE**: **Brazil**. São Paulo: Rio Pardo, Oct 1826, *Riedel 583* (holotype: LE!; isotypes: OXF, P!).

Schnella siqueirae (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia siqueirae* Ducke, Arch. Jard. Bot. Rio de Janeiro 3: 108. 1922. **TYPE**: **Brazil**. Pará: Peixe-Boi, near Almeirim, between Belém and Bragança, 24 Oct 1907, *Siqueira 8790* (holotype: MG; isotypes: BM!, G!, RB).

Schnella sprucei (Benth.) Wunderlin, comb. nov. Basionym: *Bauhinia sprucei* Benth., in Martius, Fl. Bras. 15(2): 205. 1870. **TYPE**: **Brazil**. Amazonas: near Panuré on Rio Uaupés, Oct 1853, *Spruce 2617* (holotype: K!; isotypes: NY!, OXF, RB).

Schnella stenopetala (Ducke) Wunderlin, comb. nov. Basionym: *Bauhinia stenopetala* Ducke, Bol. Técn. Inst. Agron. N. 36: 60, 70. 1959. **TYPE**: **Brazil**. Amazonas: Lago José Assu, near Parintins, 28 Dec 1935, *Ducke 35433* (holotype: RB; isotype: RB).

Schnella surinamensis (Amshoff) Wunderlin, comb. nov. Basionym: *Bauhinia surinamensis* Amshoff, Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 52: 20. 1939. **TYPE**: **Suriname**. Upper Suriname River near Kabelstation, 8 Nov 1933, *Lanjouw 1152* (holotype: U; isotype: K!, NY!).

Schnella uleana (Harms) Wunderlin, comb. nov. Basionym: *Bauhinia uleana* Harms, Verh. Bot. Vereins Prov. Brandenburg 48: 166. 1907. **TYPE: Peru**. Loreto: Tarapoto, Juan Gerra, Dec 1902, *Ule 6643* (holotype: B, destroyed; isotype: IAN, K!, MG).

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